REMARKS

Claims 1-7 are pending and stand ready for further action on the merits.

I. Prior Art-Based Issues

The following prior art rejections are pending:

A. Claims 1-2, 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya**;

B. Claims 1-2, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of **Moon** and **Kirk et al.**;

C. Claims 3-4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya** or **Moon** as applied to claims 1-2, 5-7 above, and further in view of **Matsumoto et al.**, and **Milton**; and

D. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Toya** and **Moon** in view of **Matsumoto et al.**, **Kirk** and **Milton**.

Applicant respectfully traverses each of the rejections.

IA. Toya

In order to further distinguish from Toya, Applicant encloses herewith an unexecuted Declaration Under 37 C.F.R. §1.132 by Mr. Yasuhiro Yoshioka (hereinafter the "Third Declaration") (an executed Declaration will follow).

During the January 13, 2004 Interview, the Examiner asserted that in order to distinguish from Toya based upon unexpected results, patentable weight would be given to experimental evidence which reproduces the photothermographic material of Toya

to use as a basis for comparison. The Examiner also suggests modifying this photothermographic material of Toya by replacing the fluorinated surfactants as described in column 17, line 38 (hereinafter "FC-4") with the inventive surfactant FS-13. Also, the Examiner requested a third sample to be prepared which includes FS-13 plus the combination of phthalazine and phthalic acid as the color toning agent instead of phthalazinone as used by Toya. The enclosed Third Declaration includes this evidence requested by the Examiner. Three samples were prepared as follows.

In the Third Declaration, the same procedure as in Example 2 of Toya Patent was performed to prepare a photothermographic material for comparison. This photothermographic material is designated as "No. 1".

The same procedure as in Example 2 of Toya Patent was performed except for using an equimolar amount of FS-13 of the present invention in place of $C_8F_{17}SO_2N(C_3H_7)(CH_2CH_2O)_4(CH_2)_4SO_3Na$ (=FC-4) in the topcoat layer of Toya Patent to prepare a photothermographic material for comparison. This photothermographic material is designated as "No. 2".

The same procedure as in Example 2 of Toya Patent was performed except for using an equimolar amount of phthalazine and an equimolar amount of phthalic acid in place of phthalazinone of Toya Patent to prepare a photothermographic material for comparison. This photothermographic material is designated as "No. 3".

The sample of the present invention was prepared as follows. The same procedure as in Example 2 of Toya Patent was performed except for using an equimolar amount of phthalazine and an equimolar amount of phthalic acid in place of phthalazinone of Toya Patent and using an equimolar amount of FS-13 of the present invention in place of FC-4 in the topcoat layer of Toya Patent to prepare a photothermographic material. This photothermographic material is designated as "No. 4".

The development processing was carried out in the same manner as in the Example of Toya Patent and the white spots were observed. Because the image density of No. 1 or 2 was very light, the white-spots were hard to observe.

No.	Photothermographic Material	Surface Active Agent	Toner	White Spots	Remarks
1	Example 2 of Toya Patent	FC-4	Phthalazinone	12	Comp. Ex.
2	Example 2 of Toya Patent	FS-13	Phthalazinone	11	Comp. Ex.
3	Example 2 of Toya Patent	FC-4	Phthalazine + Phthalic Add	18	Comp. Ex.
4	Example 2 of Toya Patent	FS-13	Phthalazine + Phthalic Acid	3	Invention

The white spots are remarkably improved only by the combination of features described in the present invention. Although the effect for preventing the white spots due to the surface active agent for use in the present invention can be observed in No. 1 or 2, the effect is extremely inferior to that

according to the present invention.

That data in the above table shows that photothermographic materials incorporating surface active agents having an alkylene group bonded directly to the fluorinated end group coupled with the toning agents phthalazine and phthalic acid, have far superior resistance to white spots than photothermographic materials incorporating surface active agents which do not have an alkylene group bonded directly to the fluorinated end group and the color coating agent phthalazinone as exemplified by Toya. For example, there is a 600% increase in white spots when comparing Inventive Sample 4 to Comparative Sample 3. The photothermographic material of modified example 2 of Toya containing phthalazine and phthalic acid has 18 white spots whereas modified example 2 of Toya containing the inventive surface active agent FS-13 in combination with phthalazine and phthalic acid has 3 white spots.

Based on the above-described data, the improved properties of the inventive photothermographic material incorporating surface active agents having an alkylene group bonded directly to the fluorinated end group in combination with the color toning agents phthalazine and phthalic acid, are unexpected based on the disclosure of Toya, either taken alone or in combination with the prior art.

The following arguments regarding the patentable distinctions of Toya and the present invention have been presented in the January 20, 2004 Reply and are reproduced herein

for the Examiner's convenience.

Toya teaches a method of forming an image on a light sensitive material which comprises a support having provided thereon at least one layer containing light-sensitive silver halide grains having an average grain size of no greater than 0.2 microns, and the light-sensitive silver halide grains have a coverage rate of no greater than 1 g/m^2, based on silver. (See Abstract). Based on the disclosure of Toya, the gist of his invention is the size and concentration of the silver halide grains in the light-sensitive material. Toya is not concerned to any significant degree with matters such as a surface active agent and a color toning agent in the photothermographic material.

Applicant respectfully submits that Toya fails to make the presently claimed invention obvious, since Toya fails to teach or fairly suggest a photothermographic material containing a fluorinated surface active agent as defined by inventive formula (F) in combination with a phthalazine compound and a phthalic acid compound, as presently claimed. In the July 11, 2003 Amendment, claim 1 was amended to further distinguish from Toya, i.e., to recite that the fluorinated surface active agent (Formula (F)) has an alkylene group bonded directly to the perfluoroalkyl group. Toya fails to teach or fairly suggest the fluorinated surface active agent as presently claimed.

As the MPEP directs, all the claim limitations must be taught or suggested by the prior art to establish a *prima facie*

case of obviousness. See MPEP § 2143.03. Since Toya fails to teach or suggest the inventive fluorinated surface active agent (Formula (F)) wherein an alkylene group bonded directly to the perfluoroalkyl group, Applicant respectfully submits that a *prima facie* case of obviousness has not been made regarding the disclosure of Toya.

Furthermore, Toya only suggests the use of a possible combination of a phthalazine and phthalic acid toning agent in column 7, lines 23-24 amongst a long list of possible toning agents. In addition, in the exemplified photothermographic materials, Toya uses phthalazinone alone, see column 16, line 53. As such, the skilled artisan would not be motivated to use the combination of a phthalazine and phthalic acid toning agent in the photothermographic material.

Based on the foregoing, Applicant respectfully submits that significant patentable distinctions exist between the teachings of Toya and the present invention.

IB. Moon

During the January 13, 2004 Interview, the Examiner requested further experimentation to show that the inventive photothermographic material has unexpectedly superior properties to the ***exemplified material*** of Moon. The enclosed Third Declaration includes a description of this additional experimentation requested by the Examiner.

The same procedure as in Example 1 of Moon Patent was performed except for replacing all of the surfactants described in Table I of Moon Patent with each of the surface active agents shown below to prepare photothermographic materials. These photothermographic materials are designated as "No. 5", "No. 6", "No. 7" and "No. 8", respectively. Because the image density of No. 5 or 6 was very light, the white-spots were hard to be observed. In this experiment, phthalazine and phthalic acid were added in the same layer (Imaging Layer).

No.	Photothermographic Material	Surface Active Agent	Toner	White Spots	Remarks
5	Example 1 of Moon Patent	FC-4	Succinimide + Phthalimide	15	Comp. Ex.
6	Example 1 of Moon Patent	FS-13	Succinimide + Phthalimide	12	Comp. Ex.
7	Example 1 of Moon Patent	FC-4	Phthalazine + Phthalic Acid	18	Comp. Ex.
8	Example 1 of Moon Patent	FS-13	Phthalazine + Phthalic Arid	3	Invention

The white spots are remarkably improved only by the combination according to the present invention. Although the effect for preventing the white spots due to the surface active agent for use in the present invention can be observed in No. 5 or 6, the effect is extremely inferior to that according to the present invention. As can be seen from these examples, it is not an essential condition for taking the effect of the present

invention that phthalazine and phthalic acid are added in the different layers.

Furthermore, in the January 13, 2004 Interview, the Examiner requested experimental data for the experiments described in the Declaration Under 37 C.F.R. §1.132 submitted in a letter dated August 8, 2003. The experiments are described in the enclosed Third Declaration for the Examiner's convenience and are designated as Samples 9-12.

Specifically, the same procedure as in **Example 1 of the present invention** was performed except for replacing phthalic acid and phthalazine with each of the compounds as described below and adding succinimide and phthalimide in an image forming layer to prepare photothermographic materials. These photothermographic materials are designated as "No. 9", "No. 10", "No. 11" and "No. 12", respectively. Because the image density is very light, the white spots were hard to be observed. However, the results obtained by observing the white spots are shown below. The remarkable effect can not be observed until the

compounds are combined according to the present invention.

No.	Photothermographic Material	Surface Active Agent	Toner	White Spots	Remarks
9	Example 1 of The Present Inv.	FS-13	Succinimide + Phthalimide	12	Comp. Ex.
10	Example 1 of The Present Invention	FS-13	Phthalazinone	12	Comp. Ex.
11	Example 1 of The Present Invention	FC-4	Phthalazinone	11	Comp. Ex.
12	Example 1 of The Present Inv.	FS-13	Phthalazine + Phthalic acid	3	Invention

As can be seen from the above data, the Inventive Sample No. 12 containing phthalic acid and phthalazine gave far superior resistance to white spots than samples containing succinimide and phthalimide or phthalazinone. Based on the teachings of Moon, either alone or in combination with Kirk et al., the data for Samples 5-10 and 12 show that the inventive materials containing a Surface Active agent of Formula (F) in combination with a phthalic acid compound and a phthalazine compound gives an unexpected increase in the resistance to white spots. Accordingly, significant patentable distinctions exist between the present invention and the teachings of Moon and optionally Kirk et al.

The following arguments regarding the patentable distinctions of Moon and the present invention have been presented in the January 20, 2004 Reply and are reproduced herein

for the Examiner's convenience.

The gist of Moon's invention is to reduce low density spots visible after thermal processing, by including a protective coat having a film forming binder comprised of a water dispersible polymer containing hydroxy pendent groups and specific surfactants.

As mentioned above, Applicant has amended claim 1, so that the surface active agent of formula (F) has an alkylene group "Rc" bonded to the perfluoroalkyl group "Rf" to further distinguish from Moon. Moon teaches the use of three types of surface active agents to be used in the photothermographic materials. These three types are described as formulas I-III in column 3, lines 17-50. It is clear from the disclosure, that Moon fails to fairly suggest the use of the surface active agents having the inventive formula (F) wherein the alkylene group "Rc" bonded to the perfluoroalkyl group "Rf".

Furthermore, Moon teaches that this combination of three types of surface active agents gives "surprisingly superior low density spot reduction," see column 3, lines 52-57. However, Applicant respectfully submits that the spots referred to by Moon are black spots (so-called "black pepper"). This is not the same property as the present inventor has found is improved using inventive surface active agents of formula (F), i.e., resistance to white spots. Accordingly, Moon fails to teach the concept that inserting an alkylene group so that it is bonded directly to the perfluoroalkyl group "Rf" in the surface active agent of Formula

III improves the material's resistance to white spots.

Regarding the toner in the photothermographic material, Moon describes a laundry list of possible toners in column 12, lines 13-53. In this list, at column 12, lines 37-38, there is no teaching or suggestion that phthalazine can be combined with phthalic acid, as presently claimed. In addition, Moon only uses phthalimide in the examples. See column 19, line 12. Accordingly, the skilled artisan would not be motivated to use the combination of phthalazine and phthalic acid as the toning agent as asserted by the Examiner.

Based on the foregoing, significant patentable distinctions exist between the teachings of Moon, either alone or in combination with Kirk et al., and the present invention.

The following arguments regarding the patentable distinctions of Matsumoto et al., Kirk et al. and Milton and the present invention have been presented in the January 20, 2004 Reply and are reproduced herein for the Examiner's convenience.

IIC. Matsumoto *et al.*, Kirk *et al.* and Milton

As mentioned above, Toya and Moon fail to teach or suggest the photothermographic material comprising a surface active agent of inventive formula (F) in combination with a phthalazine/phthalic acid compound toning agent, nor the unexpectedly improved properties engendered by this combination in the inventive photothermographic material. The patentable

distinctions between the presently claimed invention and the teachings of Toya and Moon, as described above, are herein incorporated by reference.

The Examiner, aware of the deficiencies of Toya and Moon, cites Matsumoto et al., Kirk et al. and Milton in order to cure those deficiencies. Applicant respectfully submits that the teachings of the combination of Matsumoto et al., Kirk et al. and Milton fail to cure these deficiencies.

The gist of the invention of Matsumoto et al. is to give a recording material little fog and dynamic color development based upon the presence of an antifoggant of general formula (A)-(F). See column 2, lines 11-39. Matsumoto et al. fail to teach or suggest the surface active agent of inventive formula (F). Also, Matsumoto et al. fail to teach using the combination of phthalazine and phthalic acid as the toning agent, as presently claimed. In column 19, lines 11-36, Matsumoto et al. generically teach many types of toning agents which can be used in the recording medium. However none of the toning agents include phthalazine, as presently claimed. Also, Matsumoto et al. use phthalazinone as the toning agent in each of the examples. See column 22, line 60. Thus, Applicant respectfully submits that Matsumoto et al. fail to cure the deficiencies of Toya and Moon.

Regarding Kirk et al., the Examiner cites this reference for teaching the polyhalogenate compound of inventive claim 4 and the phosphorus compound of inventive claim 3. As such, Kirk et al.

fail to cure the deficiencies of the combination of Toya, Moon, and Matsumoto et al.

With regard to the teachings of Milton, the Examiner cites Milton for teaching a phosphorus compound of inventive claim 3. Since Milton fails to teach or suggest the fluorinated surfactant of inventive formula (F) in combination with a color toning agent of phthalazine and phthalic acid compounds, Applicant respectfully submits that Milton fails to cure the deficiencies of the combination of Toya, Moon, Matsumoto et al. and Kirk et al. As such, withdrawal of all of the rejections is respectfully requested.

Conclusion

In view of the above amendments and comments, Applicant respectfully submits that the claims are in condition for allowance. A notice to such effect is earnestly solicited.

If the Examiner has any questions concerning this application, he is requested to contact the **Garth M. Dahlen, Ph.D., Esq.**, (#43,575) at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fee

required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: unexecuted Declaration Under 37 C.F.R. §1.132 by Mr. Yasuhiro Yoshioka